Lesson 6 - The Immense Wisdom And Providence Of The Body

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Introduction

The human body is possessed of an intelligence and order that is incomprehensible to our intellects. While many humans are vain and will not admit to an inability to know and understand, let's face it—we are all finite in our capacities. We cannot comprehend the concept of infinity and we are mystified by many realities of existence.

From miseducation, ignorance, vanity and authoritarianism amongst our professionals flow arrogance and incorrect action that brutalizes those whom they profess to serve. From intellectual wisdom and understanding flow humility, kindness and other humane virtues. Wisdom recognizes our finite nature and admits to ignorance, an act of humility. Humility does not stifle the innate drive to seek knowledge. Rather, humility is born of a realization that spurs the quest for greater wisdom. True wisdom motivates us to continual exploration and improvement.

This lesson treats an area largely unexplored and uncharted. When we view the vastness of the incredible multitude of faculties possessed by the human body, we must stand in awe of the enormous intelligence displayed in each of the quadrillions of processes conducted within the body daily . We must stand in wonderment at the precision we observe. We cannot help but conclude that the body operates on principles that manifest the reign of law and order within the organic realm. We must observe that we are constituted on such an order as to comply in every act with the universal laws of existence.

We want to charge you with an overwhelming realization of the enormity of innate intelligence—of inherent body wisdom that exceeds by thousands of times the intellectual powers we arrogantly boast of. So vast is this innate intelligence that it is positively staggering. The immensity of inborn intelligence is not an easy subject to present. Very few studies touch upon this subject. However, we can delineate and point out some of the many manifestations of inherent body wisdom.

In this lesson, you will become aware of an internal providence that should be respected. So great are our body endowments that you should adopt this attitude: Never interfere with the vital domain. You cannot possibly help it—you can only harm it. All the knowledge and wisdom of civilization to date does not equal the intelligence exhibited by the operations of a single cell within the body! The best you can do is to order the external environment to make it more favorable for the organism. The only thing you can do for the body is to leave it intelligently alone! It knows what it is doing. You don't!

1. What Constitutes Body Wisdom And Providence?

Providence is the ability to anticipate needs and provide for them. This providence may be instinctual, as in the case of the bear that stores tremendous amounts of fat in preparation for hibernation or the squirrel that stashes nuts, acorns and seeds, or it may be due to acquired wisdom, as in the case of humans who store foods during plenitude in preparation for the season of scarcity.

The body is always provident. All providence exhibits wisdom.

Reproduction of kind is providence. It is provision that the species shall survive. The complexities of reproductive provisions defy human inquiry and intellect in their profundity and detail.

Nutrition and elimination are provisions insuring that the organism survives. Likewise, the complexities and subtleties of these many provisions defy human inquiry and intellect, though compliance is easily accomplished.

The immensity of the wisdom exhibited in all things so staggers the human intellect that many often retreat into the comfort of some all-encompassing outlook that relieves them of the burden of inquiry, assessment and understanding.

As students of this course, you are undertaking to delve into life's provisions sufficiently to ascertain a valid course for uplifting yourself and fellow beings to the uttermost possibilities.

Wisdom is really a difficult word to assess and define. It can be said to be all-knowing and all-understanding within a given sphere. Wisdom is at once the comprehension of a matter in both depth and breadth and an expertise or mastery that enables the possessor to pursue a correct course of action.

In pursuing this study, we must not confuse inherent wisdom or intelligence with intellect and acquired wisdom. The ability to think is a property of the conscious intellect. It involves wisdom and intelligence of a different order than the wisdom which is the subject of this lesson.

While there are books on body wisdom and its inherent programming, these books have little substance. This sphere of our existence is little explored, though the mechanisms of inherent wisdom have been charted extensively. What we can do here is to, by observation and deduction, invoke your realization of the colossal wisdom of the body.

Body wisdom comprises the multitude of faculties within the body that recognize, communicate and effectively respond. For example, if you bite into a luscious apple, the whole system is coursed with delight. If you bite into an apple that has been injected with a solution of caustic soda, you'll immediately recognize the danger, begin spitting and sputtering and run for water to dilute and remove the deadly poison that contacted your mouth tissues. Rejection of toxic matters is just as natural as delighting in beneficent materials and influences.

1.1 Cell Wisdom and Providence

The wisdom of a single cell is said to exceed all the accumulated knowledge of the human race so far! Each cell is, quite literally, a city in itself. It is a self-contained organism. The membrane is like the wall around a great city. Within are numerous inhabitants, many of them enjoying an existence within the cell on the order as the cell enjoys within the body. These forms of life, called mitochondria, have independent metabolic systems and can thusly be said to operate symbiotically with the cell and in concert with each other. All the components of a cell act for their mutual welfare and for the welfare of the cell as the host organism.

If we marvel at the extensivness and complexity of the cell, then we must be even more astonished with the human body. The human body is said to possess 125 trillion cells, give or take a few trillion. (Some texts say there are 75 trillion and others say there are as many as 300 trillion cells in the human body.)

To say that the cell is a self-contained city in itself is no exaggeration. Cells vary in size from midgets to

giants. But even the smallest cell is about one billion times the size of its smallest component! There are thousands of organelles within each cell. These are the cell's life support system. Among these organelles are mitochondria which appear to be an independent form of life within the cellular context. Mitochondria are analogous to, or like, bacteria in their organization and functions.

A cell seems to be a city of specialized bacteria united into an organic unit to maintain a favorable environment and to more effectively secure the needs of existence.

Additional to its mitochondria, a cell has many organelles (functioning systems within their own membranes) that complement the mitochondria in making the cellular *organism* self-sufficient in its operations. Thus the cell, like the human body, requires only that its needs be supplied within the context of a favorable environment. Just as humans strive to create favorable environments for themselves, cells have long since ordered their environment by organizing into a super city known as a body. The human body can be said to be the super city.

The wisdom manifested in the faculties, organization and operations of a single cell stun the intellect. By observation we must admit that it is there and regard it with respect, even if we do not know or understand it.

1.2 Multicellular Intelligence and Intercellular Relationships

If wisdom characterizes the seemingly infinite faculties of the cell, then think of the wisdom that unites a hundred trillion of them into an organism! Think how great must be the wisdom that guides the destiny of each and every cell within the body complex.

Cells are organisms within themselves. They contain mitochondria which have the characteristics that would earn them the ascription of an organism, too! Thus, if the human body contains over a hundred trillion cells, and each cell contains a complement of mitochondria, then there must, in reality, be several quadrillion organisms within the human body. If a cell is a colony of sophisicated bacteria that have banded together for their mutual welfare, then the body may be said to be made up of sophisticated cells that have banded together for their mutual welfare.

Cells have allied themselves within a unit we call an organism to specialize in functions in complementary coordination for mutual good. If we hypothesize that bacteria have confederated and specialized in carrying on the functions that make the cell a self-contained functioning organism, then cells have likewise affiliated and specialized to better create an ideal environment and to secure the needs of life.

If we observe the life cycle of a tree, we must marvel at its tremendous intelligence. From an acorn that sprouts and slowly grows over the years into a stately oak, we see the unfolding of an intelligence that is beyond our knowledge and understanding. Within the genetic encoding of each and every cell of the acorn and the resulting tree is the knowledge, understanding and operational expertise to secure needs from environment, to fashion them precisely into its specific requirements, to utilize them and to eliminate the wastes.

In making alliances with other cells, a supra-cell coordinator is created to coordinate the activities of the cells. This is called the nervous system or brain in multicellular organisms.

1.3 Ascertaining the Intelligence of Physical Phenomena

What kind of intelligence does it require for the body to recognize food and secrete the correct enzymes for its digestion? What kind of intelligence is required to create the enzymes?

When we start asking questions exhaustively, we begin to discover the immeasurable wisdom and providence of every faculty of life.

Below is an excerpt from a physiology text. It is quoted merely to highlight certain body processes so

that we might divine some of the body faculties and the intelligence they exhibit:

> *Often tissues of the body regress to a much smaller size than previously. For instance, this occurs in the uterus following pregnancy, in muscles during long periods of inactivity and in mammary glands at the end of the period of lactation. Lysosomes are probably responsible for much if not most of this regression, for one can show that the lysosomes become very active at this time. However, the mechanism by which the lack of activity in a tissue causes the lysosomes to increase their activity is completely unknown.*
>
> *Another very special role of the lysosomes is the removal of damaged cells or damaged portions of cells from tissues-cells damaged by heat, cold, trauma, chemicals or any other factor. Damage to the cell causes lysosomes to rupture, and the released hydrolases begin immediately to digest the surrounding organic substances. If the damage is slight, only a portion of the cell will be removed, followed by repair of the cell. However, if the damage is severe, the entire cell will be digested, a process called autolysis. In this way the cell is completely removed and a new cell of the same type ordinarily is formed by mitotic reproduction of an adjacent cell to take the place of the old one.*

What this really means is that body parts not in service atrophy and that it is believed that lysosomes are responsible for regression or atrophy. But, whether or not we divine the wisdom of loss of unused faculties, there is an intelligence that creates and regresses faculties involved in pregnancy, lactation and musculature.

In the paragraph that follows, we will study one way in which the body uses lysosomes for special purposes. As you may already know, lysosomes are powerful digestive enzymes the body creates, stores and uses. When a cell is to be scrapped, the old cell is autolysed (self-digested) and the remnants are passed off as wastes into the lymph and then into the bloodstream. The wastes may be recycled in part and excreted in part. The point here is that cells have their own "self-destruct" mechanisms in the form of lysosomes.

The processes described evince tremendous body intelligence in their performance. The vital domain does not tolerate unneeded baggage. Therefore, it disposes of the useless and the surplus to the extent it can. Cells that are crippled are either repaired or replaced. High-level function is the objective of the body. The welfare of the remaining cells decrees that they dispatch crippled cells if not repairable.

The body secretes lysosomes and uses them for special purposes. Let's examine a boil or carbuncle. The little hole that extends from the body surface to the fleshy interior represents a real body disaster! But the purposes served decree the ravage that the body inflicts upon itself. When there is deadly toxic accumulation that threatens the integrity of the organism—when this toxic accumulation cannot otherwise be eliminated through regular channels of elimination—the body autolyzes a tube, hole, passage, duct or fistula-like opening to the surface. Perhaps a hundred million or so body cells will be destroyed by lysosomes. After the completion of the tube, the body collects the toxic material and forces it to the surface through the specially-created duct. There it is quarantined until drained or detoxified.

In fasting, for instance, lysosomes are utilized in destroying and digesting growths. The materials destroyed are utilized as food. These growths may be breast tumors, cancer cells, warts, cysts, etc.

The order of intelligence involved in sensing errant conditions, communicating them to the brain, assessing the reports, determining a course of action and responding with coordinated orders to all the body cells and systems involved to effect a result is beyond human comprehension. We can only intimate the vastness of the wisdom involved with our limited concepts and expressions.

This is just one of the many kinds of body wisdom that further fortifies the Life Science stricture: Leave the body intelligently alone.

1.4 The Brain as the Kingpin Behind the Human Show

For us to comprehend the magnitude of the brain's dominion and the cooperation of each cell member of that dominion, we'd have to have an intellect infinitely more developed than it presently is. The limits of intellect leave too much that is "not clearly understood."

In one of the articles used as text material in this lesson, it is pointed out that the body possesses some 125 trillion cells. Each cell consists of a multitude of organelles or life support systems that keep the cell functioning. This article points out that it is difficult for us to conceive a few thousand people getting together and cooperating harmoniously in all things. If that seems difficult, then imagine all the four billion individuals on earth acting in unison. But then, compared with the body, that is nothing! Can you imagine 36,000 earths, each with four billion inhabitants, acting in unison?

Only with such staggering thoughts as these is it possible to grasp some idea how infinite is the, knowledge, understanding and expertise of the human brain. It coordinates the activities of an astronomical number of cooperating cells. We emphasize the word cooperating because all cells are completely subservient to the brain, which, in turn, serves the whole organism. The brain exists as the controller of the body cells collectively. It serves the cells by providing them with needs they cannot obtain on their own.

Sometimes a cell may become "independent" in that its control mechanisms are affected and it either no longer possesses innate intelligence or can no longer focus its innate intelligence to cooperative endeavors. Such a cell becomes a parasite cell in that it draws from organic stores but is so "crazy" it cannot contribute to function. It is called a cancer cell. Its operations disrupt physiological harmony rather than contribute to it. A cancer cell is created by continual assault by toxic substances that eventually derange and destroy its encoded blueprints and intelligence. When such a cell exists, the brain will bring the residual powers of the organism to destroy the errant cell.

The brain, though the creature of its cellular constituents, is nevertheless supreme in the organism of which it is a part. The cells have created it as president to preside over and direct their affairs.

As the supreme faculty of the body, the brain is protected and served by its cell constituency preferentially. The brain thus is treated royally. It receives the best of everything; it is served and kept operational, even if this means the sacrifice of millions upon millions of cells. Thus, we can say the brain is the kingpin behind the human show.

2. Cell And Brain Programming

Each cell has a blueprint called genetic encoding. As a matter of fact, each mitochondrion within the cell has its own genetic material, too. This encoding enables the cell to reproduce itself faithfully. Further, it enables the cell to perform chemical, mechanical and electrical activities with exactness. The cell is a chemical factory performing more chemical feats than all the chemical factories in the world combined. Incredibly, it performs them within its membraneous confines, the volume of which is so small as to be undetectable to our eyesight.

The intelligence of a cell does not have to be learned. A new cell comes into existence just as experienced and knowledgeable as the cell that begot it. The intelligence is inherent and is automatically transmitted to progeny. The endless duplication of phono discs might be compared with cell replication. The programming is within.

The brain and central nervous system, likewise, are possessed of most of the knowledge, programming and expertise needed for operating an infinitely complex organism. The programming necessary to internal operations is automatically transmitted through reproduction of genetic codes in the developing organism. We marvel that the blueprint for the whole organism in all its incomprehensible number of faculties and functions exists within a fertilized ovum. Our stupefaction must be thorough when we realize that the microscopic fertilized ovum has all the instructions encoded that will create a grown "human being with 125 trillion cells. A perfectly developed and symmetrically formed organism of 125 trillion cells will result from the blueprint born of the union of sperm and ovum.

Everything about this organism is at all times perfect in faculties and functioning potential. It is faithful in every detail of the blueprint. It carries within all the accumulated experience and knowledge of billions of years of development. It will reliably produce a human being to the highest standard to which humans have developed. The perfect precision with which millions and trillions of formulas, processes and procedures are exactly transmitted and performed (some for just once in the whole life of the forming organism) is truly mind-boggling. (All this presumes no vitiating interference from toxicity or injury.)

We can throw up our hands and dismiss probing into such baffling complexities because of their irrelevance to the practical plans of human existence. Indeed, we can! We can live in bliss and never inquire once into our origins or the intricacies of our being. Humans lived happily unaffected lives in nature, just as animals, long before we plumbed the depths of our bodies and minds. Hence, we do not pursue this course to teach the profundities of the organism. You can procure books on physiology, biochemistry, cytology, anatomy and kindred subjects if you choose to do so. But that will add little to your effective knowledge of how to guide errant humans. That know-how is much simpler and easier, at least insofar as it involves learning.

Our objective is to imbue you with an awareness of the extensiveness of inborn intelligence and an understanding that it is to be trusted implicitly at all times and in all cases. Never be so presumptive or arrogant as to imagine that you can second-guess the body. Neither you nor anyone else can. While we can fathom the vast intelligence within, we cannot begin to substitute for it. We cannot help it a smidgeon. All that we do to the vital domain constitutes morbid interference.

The brain consists of fifty billion cells that are the most highly developed of any known. They have the potential to live for hundreds of years. They do not reproduce as do other body cells—they do not reproduce at all. But even the healthiest of us lose perhaps a hundred thousand of our brain cells daily. At this rate, it would take 150 years to lose 10% of our brain capacity. But humans often squander this precious heritage and become senile in their sixties, seventies and eighties, still in the relative youth of life's potential, with loss of perhaps more than 50% of their cerebral matter.

On the conscious level, we are babes in the woods. While our intellects have been millions of years in developing, cell intelligence has been developing for billions of years, and our subconscious faculties have been hundreds of millions of years in development. Our infant intellects are at a stage where it can most appropriately be said that "a little knowledge is a dangerous thing." If the human race survives long enough, we may come to a general intellectual level consonant with Life Science ideals. We may all come to realize that our own well-being is indelibly bound in following nature's mandates—in living in complete harmony with our fellow sojourners—in total non-exploitation of humans or of other creatures.

2.1 Wisdom and Precision of Body Processes

Some 100,000 different proteins are synthesized within the body. The blueprints or formulas for these proteins exist within almost every cell. The exact procedures involved for making these proteins most efficiently are a part of cell encoding or programming.

Likewise, the cells have a wealth of abilities—to store and use all the raw materials they need, to create the compounds they need and will need, to create the energy they need, to create and apply the energy

commanded of them in behalf of the organism—the multitude of capabilities of the cell overwhelm the intellect. It is said that if all the processes and capabilities of the cell were to be taken over by a computer, a computer of the dimensions of New York City could not cope with them.

A cell might better be likened to a self-contained universe rather than a self-contained city.

Adenosine Triphosphate (ATP) is the source of energy for most cell functions. Most ATP is created by the specialized organelles called mitochondria. Mitochondria create this complicated molecule, ATP, which "fires" when given a proper signal. When the ATP is used, the resulting spent molecule is recycled or "reloaded" for reuse. The know-how, providence and expertise involved in these chemical processes stagger the imagination.

2.2 Cognitive Faculties

At every level of its being, the body has highly-developed sensors that can readily recognize that which is good, bad or indifferent. All our senses coalesce to recognize foods, dangers, pleasurable and enticing situations, unpleasurable and repulsive situations, and so on.

Externally, our conscious faculties and intellect fulfill sensory and cognitive roles. Within the vital domain there are millions upon millions of specialized faculties for sensing the electro-chemical-mechanical nature of everything that enters.

Nerves translate all sensory data into electrical impulses and transmit them to the brain for a coordinated and purposive response that will effectively deal with the situation.

To provide an example, let us propose that many cells are short of an amino acid needed to synthesize a crucial protein requirement. This need is communicated to the brain, which relays a message to cells for inventories of surplus amino acids. Those required for deamination and reamination into the needed amino acids are directed to the liver, where deamination is conducted and the new amino acid is synthesized. The order of intelligence that can perform these immensely complex inventory and chemical activities makes our intellects, as marvelous as they are, look rather miniscule by comparison.

2.3 The Body Communications System

The body has some 50 billion brain cells. It has billions of nerve cells involved in message transmission. Messages travel within and around the body with the speed of electricity—nerve transmissions are almost all electrical. There are chemical communications within the body as well.

If we viewed a city like New York with eight million inhabitants, millions of telephones, hundreds of exchanges and thousands of switchboards, we can only begin to understand how intricate and complex are the body communications systems. The body has a communications system that serves at one time the equivalent of 36,000 earths, each earth having over four billion residents! Each of those inhabitants has a telephone.

If you knew what was involved in turning over during the night during sleep, you'd be astonished. An area of the body involving countless billions of cells becomes cramped or distressed in some way. An urgent request goes to the brain—rather, the brain has been monitoring the situation all along. But movement is not initiated as long as matters remain within certain parameters. When the situation threatens the integrity of certain areas, the brain, entirely beneath the level of wakefulness, will mobilize trillions of cells that comprise hundreds of muscle systems and effect a shift of body weight to a more comfortable position.

2.4 The Body's Master Coordinator

We have commented upon the brain as the kingpin in all body operations. The brain is the supreme creation that trillions of cooperating cells have devised to serve them as a master communications and

coordinations center. The brain has been developed to administer the many needs within. As well, the brain has been developed to aid the organism to deal with the external world on its own terms.

The thoughts we have on a conscious level are marvels when viewed from one aspect. But our intellects are hardly capable of conducting more than one line of thought at a time. In comparison, the brain conducts millions of processes simultaneously beneath the level of awareness! This service never ceases, going on every second for our entire lifetime. The busyness of the brain in serving the equivalent of 36,000 earths with four billion inhabitants each is unimaginable. We can only hint at it.

For example, one of the brain's responsibilities is overseeing the maintenance and circulation of the blood—among a few million other things. And speaking of a few million things, while you read this sentence your body has created 10,000,000 new blood cells! That is, it creates ten million blood cells per second! The body has some 25 trillion blood cells, and their average life expectancy is only about thirty days. Blood maintenance and circulation have unimaginable intelligence behind them.

The luxury of abstract thought is possessed by only a few creatures on earth. Some races of humans, notably the negrillo or pigmy, are said to be incapable of mastering abstractions. Yet there are other creatures, most notably whales, dolphins (porpoises) and elephants, who may be able to think in abstractions. Perhaps even dogs and wolves are capable of abstract thought. We don't really know much about the subject. Certainly no other creatures approach the capacities of humans for abstract thought.

The brain is absolute master of all the cells within its domain. Yet it is totally subservient to its cells and is very responsive to their needs. But the organic order of the body system is such that the brain is at the very apex in importance. While the brain was the last development of the human organism, it is the first in importance. Every cell, tissue and organ system other than the heart are slowly sacrificed, in critical periods such as starvation, that the brain might survive. When the brain can no longer survive, death occurs.

The brain is the prime instrument in establishing, supplying and maintaining the needs and stable environment of the trillions of cells. Each cell has yet other organisms that thrive within its internal environment called mitochondria. The brain exists for every cell in the body and, in turn, the brain's welfare is dependent upon the well-being of the cellular system it serves.

3. Knowledge, Expertise And Resources For Healing Processes

Can anyone doubt, after a study of the countless control mechanisms within the body, after observing what happens with predictable reliability when cuts, broken bones and other injuries are suffered, that the body is completely self-repairing?

Can anyone not see that the body has vast resources, that it is completely self-sufficient and that it is fully capable of coping with internal exigencies that beset it to the exclusion of all other agencies?

Can anyone of average intelligence not see that any intrusion upon the vital domain is grossly wrong? That it obstructs and interferes with processes revealing far more wisdom and expertise than we can ever hope to master?

Can anyone doubt that all body action is intelligent, purposeful action?

Can anyone doubt that symptoms of sickness evince body action in purifying and healing itself? Can anyone doubt that, in conducting disease processes, the body is manifesting wisdom and physiologically

correct remedial activities?

Can anyone doubt that an organism with the power to develop itself into a superb human being from a fertilized ovum is less than capable of managing its internal affairs?

Can any person presume a knowledge of internal needs better than the body itself?

It is very unwise, even dangerous, for anyone to presume an ability or knowledge superior to that of the body. Leave the body intelligently alone!

3.1 Body Actions Always Are Right Actions

It has been said in jest that "we are our own worst enemies." The facade of a joke often conceals an element of truth.

What humans often do relative to their bodies reminds me of a story. Two husky men were going down the street. They observed a huge piano apparently stuck in a doorway and two workmen inside trying to move it. They offered their help and started struggling to get the piano into the house while the two workmen inside struggled also. After about half an hour of fruitless efforts, one of the workmen inside yelled for a break so they could get their heads together on this thing. Upon convening, one workman commented that he'd never had such great diffculty in getting a piano out of a house before.

"Getting it out of the house?" asked one of the volunteers. "We been trying to help you get it into the house."

When we deem our intellects superior to the obvious demands of the body in a crisis, we exhibit gross ignorance. The only way to help the body is to cooperate with it, to meet its needs in accord with its condition. That is the only wise thing to do. This means "leave the body intelligently alone" to do its thing in full confidence that all body action is right action.

3.2 Intervention of Intellect in Body Affairs

If you hold your breath or force yourself to breathe in a manner that is contrary to normal breathing, you are interfering in a vital body process. Not many people hold their breaths long nor perform forced breathing (often called deep breathing) such that they underventilate or hyperventilate their bodies and beget hallucinations and *acapna*.

The body is the best arbiter of its needs. It is autonomous and operates from a cumulative fount of wisdom that we can never hope to emulate.

Often the body will make its demands upon us in some gentle manner, such as in thirst, sleepiness, hunger, etc. But when we figure that wine, beer or soda pop are just fine as ways to satisfy thirst, we are imposing upon the body a health-sapping burden. The body demanded water, and only water, in thirst. To supply it with anything other than water is a mistake.

At some time in our past the current superstition about diseases began. The present idea about disease is the result of a gradual evolution from the ideas of evil spirits and demons. The people who held these ideas admitted that they were wrong by the fact that they changed their minds and replaced them with new ideas. However, the new ideas have the same roots as the old ideas and are, therefore, equally wrong.

The misconception that still prevails in matters of sickness or disease is that the body is being attacked. The misconception further holds that the attacker or attackers must be counterattacked and routed from the body. Under this misconception many people have been harmed (by drugs). Death occurs in some cases. In fact, when physicians go on strike, the death rate usually plummets by 50 to 60%!

One of the prime dicta of the Hygienic philosophy is noninterference in the body. Each cell of the body possesses more knowledge and expertise than the whole of the human race collectively on the conscious

level. Our voodooistic rituals with drugs are based on conjectures about what the body should be doing or what it needs when ill.

It bears repeating that sickness is vital body action. It is right action. The body initiates and conducts the disease process to accomplish physiological objectives. To mistake that action as an attack by an invader that must be routed is disastrous in practice.

Refrain always from second-guessing the body—what it needs or what should be done. We'll repeat over and over: "Leave the body intelligently alone." Establish the external conditions of health based on the body's capabilities of the moment and that's all. That is a simple enough dictum to follow.

3.3 Building Confidence in Inherent Faculties

This lesson cannot pinpoint body wisdom any more than have our many researchers and thinkers. We know its there and we perceive how extensive it is when we explore it. But, by and large, most of our population is unaware of their bodies' tremendous faculties. They violate the laws of their being and then seek "help" when problems arise.

Not only must you build your confidence in the unfailing powers of the organism, but you must establish this confidence in your clients. There are many approaches to accomplishing this. Methods that make a deep impression are to be preferred. Among the educational aids Life Science is developing are graphic presentations depicting the incredible powers within.

When the resources and powers of the body fail to restore health under favorable conditions, then the condition is irremediable. Life Science is the court of last resort for many who have tried everything but healthful living. Many turn too late—they're already over the hill.

Everyone can benefit by the employment of healthful practices within the context of their condition. As a professional, you cannot promise miracles but you can say truthfully that the methods you propose are the only factors that will enable the body to rebuild health.

3.4 A Medical Assessment Of Body Wisdom

Dr. David Reuben, M.D., has authored two best-selling books. One, *Everything You Always Wanted to Know About Nutrition*, contains much erroneous guidance. But it also shatters many commercially-fostered myths in the field of foods, feeding and nutrition.

The following quote from the book illustrates the body's needs and powers:

> *Look at it this way. A plain old apple contains 191 known chemical compounds, each of which plays an important role in human nutrition. When you eat that apple, over 1,300 chemical reactions occur to break it down into its component molecules. Those molecules are then dispatched to exactly the areas of the body where they are required. The pectin goes to the large intestine, the vitamin C is sent to the skin, the vitamin A goes to the retinal area of the eyes, and so on times 191. You don't make it happen because you don't even know it's happening. There are 160,000 edible plants on this earth—you didn't put any of them there. But most of them help keep you alive. Your digestive system was designed by God—not by you, not by IBM and not by a government agency. It can take almost any animal that walks by or any plant that springs up in an empty field and convert it into brain, bone, heart, muscle and energy to keep you alive. Even the most arrogant and self-important "scientist" must admit that a Being far wiser than any human must have devised and implemented that will-uncomprehended nutritional system.*
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> *So don't think that the people who make instant breakfasts or imitation orange juice or yucky white imitation bread have the slightest idea what your body needs. That applies as well to those who turn out vitamin pills and nutritional supplements. Those fumbling human*

brains cannot improve on the Master Design that brought you here and allows you to survive from day to day.

3.5 Law and Order Reign Within the Body

Pick up any book on physiology, nutrition, biology, cytology, biochemistry, anatomy and related sciences. Each attests to the multitude of activities the body conducts. Each bespeaks the orderliness and precision with which the activities are conducted; each witnesses the enormous wisdom—the vast know-how and expertise posessed within; each tells of the multitude of faculties and resources within the body.

However, for a person who elects to make a practical application of the world's most needed expertise, a pursuit of esoteric knowledge would be luxurious entertainment. Most of it is meaningless, for we cannot change nature. It does not need to be changed. We can always rely on it. The multitudinous processes and relationships proclaim the unalterable reign of law and order within. All body wisdom is based soundly upon the immutable physical relationships of matter. Entitative existence depends entirely upon fixed principles and undeviating physical relationships. Bodily survival depends upon taking charge of and utilizing needed natural substances in accord with invariable laws.

The order of intelligence evinced in the mastery of nature's forces dwarfs our intellects beyond our ability to comprehend. The best we can do is bend our knees in awe and acknowledge our inner wisdom and resources as our master. We must make our intellects totally subservient to our bodily wisdom. Our intellects will thrive ever more if we learn to cooperate with our inner wisdom.

By teaming up with your body intelligence in all matters, you can become a winner in the game of life. You can help others become winners in the game of life, too!

5. Programming The Intellect For Exuberant Well-Being

By now you are no doubt persuaded that the body is constructed for perfect operations.

The body is a perfect instrument within the environment of its adaptation when its needs are correctly furnished. Because intellect often misinterprets body processes and actually contravenes its needs—because cumulative institutionalized errors regard the body and its needs incorrectly, much suffering and disease prevail today.

Learn to trust the body implicitly. Learn how to properly supply it and know that it will perform correctly whether in struggle or great health. Struggle is occasioned when the body is incorrectly supplied or interfered with. Lacing our bodies with toxic fare, miscalled food and drink, is incorrect supply, and the administration of drugs, treatments and anti-vital modalities constitutes gross interference.

From wrong intellectual programming flows errors that undermine and destroy health.

The purpose of this course is to present you with ready-made programming you can employ in helping your clients reprogram themselves so that they may enjoy wonderful health.

Clients will seek you out because they want to free themselves of nagging problems and suffering. They are not necessarily looking to change their habits or programming—they want to be made well within the context of their status quo—most are fixed in their habits (programming) and resist changing their

ways. Even if they wanted to, most are in situations that do not make breaking habits an easy matter.

To break bad habits, it is wise to take an individual out of the mold in which the habits were forged and indulged and place that person for awhile in an environment where only good habits can be followed. Within a directed or controlled environment, all the experiences are usually pleasant—even happy, memorable occasions. Those who are fasting or living within the atmosphere of a health retreat improve themselves, enjoy fellow guests and enjoy body rest. Frequently they are in a heady state. Tensions that ordinarily beset them within conventional society are relaxed and often nonexistent.

Within the context of a euphoric paradise, clients improve rapidly. Their intellects are largely reprogrammed in support of an inner drive to continue the benefits and happiness realized.

More healthful living has been inspired in Americans at health retreats than any other single way. The great value in establishing a controlled and ideally directed environment for health seekers is thus evident. Nothing reprograms the mind so quickly or so well as living and doing in rapport with others going in the same direction.

5. Questions & Answers

If the body has the wisdom you say, then why should it ever get sick?

> The body becomes sick because of its wisdom. You must not look upon sickness as a punishment or as a stupid thing. The body always strives to the highest level of well-being as possible. If it becomes loaded with toxic substances due to whatever reason, it requires a lot of wisdom to withdraw energies from many normal channels, redirect it to purification processes and accomplish expulsion of morbid matters. If the intellect insists on unhealthful habits, including stuffing on pathogenic substances, what would happen if the body were equally unwise? Morbid matters would collect until sufficiently concentrated to dispatch the organism.

Isn't the cell the smallest unit of human life? You have said there are yet smaller forms inside the cell. Please comment on this.

> There are other inhabitants within a cell. These are called mitochondria. Each mitochondrion fulfills the qualities of life, i.e., it has its own metabolism, nucleus, genetic material (DNA) and so on. Just as the atom becomes complicated with protons, mesons, electrons and neutrons and becomes even more complicated when formed into molecules, so too, the human body seems to be at least a three-step organization with mitochondria, cells and, finally, the organic whole.

How can you say that everything the body knows is already programmed into the fertilized ovum? Wouldn't you say a minor detail like 1,500 miles of specialized tubing called blood vessels in our bodies is the result of a far greater wisdom and power than could possibly be blueprinted on a pinhead?

> It is as easy to say things one way as the other. Both truth and misconceptions can be reduced to words. However, intellectual honesty bids me to say that what we observe is evidence only of itself. In the matter of reproduction we observe the microscopic fertilized ovum carrying within all the blueprints needed to create a perfectly functioning adult with

millions of times more faculties than just the 1,500 miles of circulatory tubing.

Thank you for bringing to our attention an additional aspect of the body's really immense programming and how that programming is so readily reproducible. Because we cannot understand how the complexity of a human organism can be blueprinted into a fertilized ovum does not mean it is not there. It merely pinpoints another facet of how limited are our intellects. We can see the unfoldment of this blueprint in all its detail as it develops a human being. We cannot see any other agency involved nor can we logically infer it.

You have intimated that the body has infinite intelligence. Is this really the case?

No. The body has very finite intelligence, and that wisdom relates to internal and external matters only to the extent that it must alter its operations of the moment to maintain equilibrium or an ideal internal environment. Relative to our intellect, internal wisdom is infinite in my portrayal only because it is so much more vast, relatively. I would also impress you with this: Despite its imperfections, we must marvel that we have the luxury of the intellect. Intellectual faculties are at the very apex of body intelligence. That they have been vitiated and misdirected does not detract from them.

You've said that bacteria have been around for billions of years and that they have evolved to being part of the human body. Aren't you assuming Darwin's theory is scientific?

I know of the great controversies of our day on creationism versus evolution. Darwin's theory is that life forms evolved and developed. This is out of the class of being a theory in view of the many types of plant and animal life humans have developed by guided breeding. Recognizing that development can be guided is also to recognize that it can happen without guidance from the human intellect.

What do you have to support your statement that the death rate goes down 50% to 60% when doctors go on strike?

There were two physicians' strikes in Israel, one in Holland, one in Belgium, one in Canada and several in the U.S.A. In every case the death rate went down sharply. You have our book, *The Myth of Medicine*. Why not take time out and read it. You'll find substantiation in its pages.

How are we going to get people to fast if that is the only way to help them.

Clients will seek you out because they are looking for benefits. Fasting is but one condition under which great benefit can be derived. If the client really needs a fast, it is a procedure to be outlined to him/her in honest terms with the benefits that always accrue correctly portrayed. Not all clients who should fast will do that, but that is their responsibility. You will have done your duty to your client by introducing them to the solution to their problems and by making your best effort to present that solution as a simple, easy and desirable way to go.

Article #1: The Great Power Within You by T.C. Fry

The following is based on the writings of the great Natural Hygienist, health educator and true Life Scientist, Dr. Herbert M. Shelton.

Living organisms are fully self-sufficient and self-governing entities. Supplied appropriately with the needs of life, they thrive in perfect health, completely free of disease.

From conception all living organisms are endowed with a built-in program for a full, fruitful and joyous life.

Living organisms are self-programmed to meet all life's needs within environments of their adaptation.

All living organisms are self-directing, self-constructing, self-defending, self-preserving, self-maintaining and, in the event of injury or illness, self-repairing or self-healing.

The healing principle is always in the living system itself.

The only power that can heal is the power that repairs; the only power that can repair is that power that produces; the power that now produces is the power that originally and always produced. The power that constructs *a full-grown individual from a fertilized ovum is the only healing power!*

Healing is, therefore, a continuous, unceasing and exclusively intrinsic power of every organism.

The power that produces an organism and keeps it alive and functioning is the only power capable of governing, maintaining and healing it.

Mastering and relying upon this great power within will yield a life of bliss and goodness *with complete freedom from ailments and suffering*.

The simple, self-evident truth enunciated in this article embodies a long train of guiding principles that can enable you to avert miseries, woes and suffering.

Knowing your tremendous inner capabilities frees you of many burdensome illusions and provides a key to true life enhancement.

Recognizing the truth and implications of this lesson's text is the basis upon which you can immeasurably improve your life and its circumstances.

Recognizing the fundamental truth outlined herein sets the stage for fulfilling the obligation you have to yourself and fellow beings, that of reorienting and reprogramming yourself for superlative well-being.

The Need For Reprogramming yourself

Standing in the way of total well-being for all too many who otherwise have the knowledge, the understanding and the dedication to achieve their highest potential are many ingrained bad habits, physiological addictions and erroneous concepts.

"Tis better to be ignorant than to know so much that isn't so."

Humans are creatures of habits. Habits are conditioned responses which we rely upon for personal efficiency. We spend many years from infanthood on learning responses to many thousands of situations and circumstances.

With set response patterns we do not have to go through time-loss and trouble in solving problems anew every time we face them—we humans solve our problems once and for all and adopt the solutions as fixed and automatic responses known as habits. When situations reoccur, we unconsciously employ our habit patterns.

That many of these habits amount to error fixation and that our accommodations to many of these habits amount to life-destroying perversions gives rise to the need to reprogram ourselves.

Most of our habits are learned from people who learned from others back into the murky reaches of time. Habits are always adapted and employed in accord with our own peculiar abilities.

Likewise, we learn most of our concepts and misconcepts from others and adopt them in the shape or fashion our individual peculiarities dictate.

Habits are wonderful, for they are the foundation upon which our advanced human attainments have been built. As the most programmable beings in existence, we have more "conditioned responses" to carry us through more and greater complexities than other creatures in existence. By and large, our habits are constructive and get us along in this world remarkably well.

On the other hand, there are many "klunkers" in our personal armentarium that sabotage our well-being.

Thus it follows that we can perform no better than the limitations of our self-programming. Our programming is at the same time our boon and our bane. To the extent that it guides us correctly, it is a boon. Insofar as it locks us into wrong conceptual frameworks, perverted outlooks, unwholesome practices, vitiated and antisocial dispositions and many other self-defeating characteristics, programming is a bar to our well-being.

It is unfortunate that most or all of us are incorrectly attuned to a greater or lesser extent in many of our life programs.

But we are fortunate in that we, like computers, can be reprogrammed for better performance and more rewarding results.

If you want to capitalize upon the colossal potential within yourself, then you must reprogram yourself.

Reprogramming yourself is difficult because you will be burdened heavily by the weight of previous conditioning and the drives, good, bad and indifferent, which initiate and impel your activities.

You'll have to dispel a lot of myths and superstitions which infest your concepts and burden your thinking processes. What you take for granted is difficult to overcome. But you must and can do so.

To reprogram yourself for a better life on a higher plane of existence, the first order of business is to admit to yourself that you could harbor a lot of beliefs and practices that are responsible for your and your fellow beings' generally poor condition and overall suffering.

We all know mental anguish and frustrations. These will flow from lives not led in accord with the course our innate nature decrees.

You can reprogram yourself to understand and practice the course you must follow. You can avoid those pitfalls that hamper you from assuming the position on the pedestal that all humans should occupy.

How To Reprogram Yourself For Superlative Well-Being

Following are the steps necessary for the ordinary person to become a Life Scientist, that is, to become an individual who conducts his or her life activities in accord with the dictates of the human biological heritage:

1. You must come to an awareness or knowledge that all is not right in this world of ours, or even with yourself. While almost everyone is self-satisfied that he or she has the answers to life's and society's great vexations, the generally deteriorating condition of almost everyone seems to be self-evidence against such smugness. Therefore, you must be willing to admit to holding many erroneous notions. *We do not perceive our errors and often reject the truth when faced with it, but we must, first, cultivate an open, receptive mind*.
2. You must seek knowledge and understanding with open arms. That you are reading this is in your favor. In seeking knowledge with the perspective of understanding, that is, wisdom, you'll be

dependent upon your ability to master ideas and concepts.

3. You must seek knowledge, nonetheless, if you want to better your life situation. It is essential for correct reorientation. The fundamental principles, if applied on an individual and social scale, will salvage humanity from its depravity.
4. You must master an insight and understanding of what you learn—in your cosmogony you must fit all the parts and pieces of your knowledge such that you have perspective; it all must make good sense.
5. You must become the absolute master of your personal activities and circumstances. You must be willing, to the extent need dictates, to snap all ties with existing habits, intellectual stances and practices, no matter how deeply imbedded or how dear to you they may be.
6. You must be willing to end all fealty to anything that you believe, if need be. Keep in mind that the use of the word *believe* is a confession of ignorance, for it is not necessary to believe that which you know. To insist upon what you merely believe, may be insisting upon ignorance and misconception. Face up to the fact that many of your beliefs may be nothing more than myths and popularly-accepted superstitions that hamstring you.
7. You must be willing to change your circumstances, if necessary, to effect self-reprogramming and to follow a correct life style.
8. You must undertake and study the conditions of health and well-being. Your greatest task is not the one of learning so much as unburdening yourself of a lot of burdensome intellectual baggage.
9. You must undertake to observe in your practices that which the truths you learn dictate.

Article #2: Life's Engineering by Dr. Herbert M. Shelton

The greatest engineering feat of which we know anything is the building of a complex animal organism from a microscopic ovum. Think, for instance, of the marvels of the human body with its pulleys and levers to perform mechanical work, its channels for distribution of food and drainage of sewage and its means of regulating its temperature and adapting its actions and functions to its varied environments and needs. Its nervous system and the eyes, ears, etc. are constant sources of wonder. We regard the radio as a wonderful invention, as indeed it is, but we are all equipped with more wonderful "sending" and "receiving" sets than any radio manufacturer will ever produce. All human inventions have their protypes in the animal body.

In studying the wonders of the body, its structures, functions, development, growth and its varied powers and capacities, it is well to keep in mind that the building and preservation of all these things is from within. The power, force or intelligence that evolves the adult body from the fertilized ovum is in the body, is part of it and is in constant and unceasing control of all its activities. Whether it is an intelligent power or a blind energy, it works determinately toward the latest results in complexity of structure and function. In development and maintenance, and in health and disease, the movements of life appear to be guided by intelligence more often than the conscious intelligence of man. Indeed, unless we grant that something can come out of nothing, that intelligence can come out of that which has no intelligence, we must believe that the conscious intelligence of man is a subordinate part of that broader intelligence that evolves his body and which inheres in it.

If we view a few of the engineering feats performed by the body in cases of injury and disease, we are forcibly struck with the truth of Sylvester Graham's remark: "*In all these operations the organic instincts act determinately, and, as it were, rationally, with reference to a final cause of good, viz., the*

removal of the offending cause." Some of these wonderful feats have been presented to you in previous chapters. We will here present a few of a different class.

To begin with, let us consider the natural healing of a wound, scratch or broken skin. We have become so accustomed to this familiar phenomenon that we have come to regard it as an almost mechanical process. But a close examination of the process shows us the presence of that same marvelous intelligence that built the body from a tiny microscopic speck of protoplasm to its present state.

Whenever the skin is broken or cut there is an exudation of blood which coagulates and forms an airtight scab. This scab serves as a protection to the wound and remains for a shorter or longer time as is needed.

Underneath this scab a wonderful thing occurs. Blood is rushed to the injured part in large quantities. The tissues, nerve and muscle cells, etc. on each side of the wound start multiplying rapidly and build a "cell-bridge" across the gap until the severed edges of the wound are reunited. But this is no mere haphazard process. Everywhere is apparent the presence of directing law and order. The newly-formed cells of the blood vessels unite with their brothers on the other side so that, in an orderly and evenly manner, the channels of circulation are re-established. In this same lawful and orderly manner the connective tissues reunite. Skillfully, and just as a lineman repairs a telegraph system, do the nerve cells repair their broken line. Muscles and other tissues are repaired in a similar manner. And what is a wonderfully marvelous fact to observe, no mistakes are made in this connective tissue, but each tissue connects with its kind.

After the wound is healed, when a new skin has been formed so that there is no longer any need for the protecting scab, nature proceeds to undermine and get rid of it. As long as the scab was useful it was firmly attached to the skin so that it was not easy to pull it off, but when there was no longer need for it, it was undermined so that it fell off of its own weight.

What more evidence than this does one require to know that the same intelligent power that built our bodies is also the power that heals it? What better evidence do we want that the healing process is accomplished in the same orderly manner and by means of the same functions with which the body is built, maintained and modified to meet its present needs.

We get a still more wonderful view of how nature performs her work if we observe the healing of a fractured or broken bone. If an arm or leg be broken, this same marvelous intelligence that has brought us from ovum to adulthood immediately sets about to repair the damage done. A liquid substance is secreted and deposited over the entire surface of the bone in each direction from the point of fracture. This section quickly hardens into a bone-like substance and is firmly attached to the two sections of the bone. Until nature can repair the damage, this "bone ring" forms the chief support whereby the limb can be used. By the same process of cell multiplication which we saw in the healing of the wound, the ends of the bone are reunited. The circulatory channels are re-established through the part. It is then that the "bone ring" support is softened and absorbed, except about an eighth to a quarter of an inch about the point of fracture.

If you strike your finger with a hammer, a very painful bruise is the result. There is an effusion of blood under the surface, with inflammation and discoloration. The tissues are mangled, the cells are broken and many of them are killed. But does the thumb always remain so? No. As time passes, new tissues are formed to replace the dead ones and the dead blood and tissue cells are carried away by the bloodstream. The inflammation subsides, the pain ceases and the bruise is healed and soon forgotten. Thus again is manifested the marvelous intelligence of the power that superintends the workshop which we call our body. Once again we watch its work and see its marvelous efficiency as a workman.

A similar manifestation of the body's self-healing, self-adjusting and self-repairing powers is seen in the common accident whereby a sliver becomes embedded in the flesh. If it is not removed immediately, nature, or vital force, does a skillful little piece of engineering and removes it for us. Pain and inflammation are soon followed by the formation of pus, which breaks down the tissues, towards the surface of the body. Gradually increasing in amount, the pus finally breaks through the overlying skin

and runs out, carrying the sliver along as a souvenir.

A remarkable engineering feat is presented to us in abscess formations. Ordinarily the abscess is limited by a thick protective wall of granulation tissue which prevents the abscess from spreading and prevents rapid escape of the pus into the circulation.

In appendicitis the loops of the bowels around the appendix form friendly adhesions. They adhere together and form a strong wall against further spread of the trouble. Within this enclosure the abscesses form. The line of least resistance normally is into the bowels so that practically every case, if not interfered with by meddlesome doctors, will rupture into the bowels and the pus will pass out with the stools.

Where the ice bag is employed for one or two days prior to the usual operations, there is a noticeable lack of effort on the part of nature to wall off the appendix from the rest of the abdominal cavity. However, where the ice bag has not been employed, a distinct walling off of the acutely inflamed and gangrenous appendix from the general peritoneal cavity is found. So greatly does the ice bag interfere with the curative and protective operations of nature that one of the leading abdominal surgeons of this country declares: "I have entirely discarded the use of the ice bag, and in cases brought to me in which it has been used, I always announce beforehand that I expect to find a gangrenous appendix and am seldom surprised. *Clearly the ice bag should never be used in cases of actual or suspected appendicitis.*" Nature can do her own work in her own way, and all our so-called aiding of nature amounts to is nothing more than meddlesome and pernicious interference.

Acute inflammation of the liver usually terminates in resolution, but sometimes it terminates in suppuration with abscess formation. This is more apt to be the case in hot climates. The amount of matter discharged from an abscess of the liver is sometimes enormous, and it is wonderful to see in what ways nature operates in getting rid of it.

There are several channels through which the pus may be sent out of the system. The inflammation may extend upward until an adhesion to the diaphragm is accomplished. A dense wall of scar tissue is first formed around the abscess. The abscess then extends through the diaphragm to the lungs, which become adherent to the diaphragm. Liver, diaphragm and lungs form one solid piece. A tight union of these organs prevents the pus from pouring into the peritoneal or pleural cavities. A hole is eaten through the lung and the pus is poured into a bronchial tube and is coughed up, emptying the abscess and leaving a clean hole. The wall of scar tissue thrown up around the path of the abscess grows stronger and contracts until, finally, only the scar remains, it having closed the hole, and the patient is well.

The abscess may be directed downward or to the side of the liver. In such a case the process is the same except the liver becomes united to the stomach, the intestines or the walls of the abdomen by adhesions produced by inflammation. If it adheres to the stomach or intestine, the abscess will perforate into these and the pus will pass out in the stools. If it becomes adherent to the wall of the abdomen, the abscess will "come to a head" under the skin and the pus will be discharged on the surface of the body. In either case cicatrization follows and the patient is well. In some cases the abscess discharges into the gallbladder and passes from there into the intestine. It has also been known to "point" on the back.

It sometimes happens in weak individuals that nature is not able to make proper connections along the line of march and the pus ends up in the pleural cavity, resulting in empyema, or in the abdominal cavity, where it results in peritonitis and, usually, death.

Another daring engineering feat is often accomplished by nature in the case of gallstones that are too large to pass through the bile duct directly into the small intestine. She frequently causes the gallbladder to adhere, by means of inflammation, to the wall of the intestine. An ulcer forms, making a hole through both the wall of the gallbladder and the wall of the intestine. The stone slips through into the intestine and passes out with the stools. The hole heals up and all is well again. In other cases the stone may be sent out through the abdominal wall and skin, on the outside of the body.

An unusual piece of engineering which shows, in a remarkable manner, the ingenuity of nature in her

efforts at prolonging life in spite of every obstacle, is recorded by J. F. Baldwin, A.M., M.D., F.A.C.S., in a surgical paper dealing with blood transfusions. He performed an operation on a middle-aged woman who had been having frequent hemorrhages from her bowels for several years. He says:

> *At the operation I removed a snarl of small bowel, making the usual anastamosis. Examination of this snarl showed that there had been an intestinal obstruction, but nature had overcome it by ulceration between adherent loops of the bowel above and below the obstruction. The ulcer persisted, however, and it was its persistent bleeding that caused her anemia. She made an excellent recovery and got fat and hearty.*

It looks like a real intelligence at work when nature causes two folds of the bowels to adhere together and then ulcerates through them in order to make a passage around an obstruction. There cannot be the slightest doubt that the ulcer would have healed, leaving a passage, and the bleeding stopped, had the opportunity been afforded it. Nature probably cried out day after day in unmistakable language for the cessation of feeding long enough for her to complete her engineering feat. But this was never given her. The ulcerated surface was kept constantly irritated with food, and drugs as well.

Abscesses everywhere in the body are limited and walled off by the formation of a thick wall of granulation tissue. Gangrene is also walled off in the same manner. The necrosed portion then sloughs off; nature grows new tissue to take the place of the destroyed tissue and the place is healed.

Encapsulation is the process of surrounding a body or substance with a capsule. A cyst or capsule consists of a cavity lined according to its origin by endothelium (in preexisting cavities of connective tissue—exudation cysts) or epithelium (in pre-existing epithelial cavities—retention cysts) with a fluid or semifluid content.

Those of chief interest to us here are known as *distention cysts* and are divided into:

(a) Retention cysts, which are due to the obstruction of the excretory ducts of glands. The cavity becomes filled with the secretion of the gland which later becomes altered and circumscribed by a fibrous wall. These may develop in any glandular structure, as pancreas, kidneys, salivary glands, mammary glands, sebaceous glands (wens).

Around a foreign body like a bullet, such a capsule forms. There is first inflammation and perhaps suppuration. But if this fails to remove the bullet, a capsule of tissue also containing fluid is formed, and the bullet is rendered innocuous. A similar thing frequently happens in the lungs in the case of germs. Rausse thought this fluid was a variety of mucus and thought that chemical or drug poisons were enveloped in this same "musus" to render them harmless and that they were then deposited in the tissues. He says with regard to the face that this theory cannot at present be demonstrated:

> *This theory is founded upon the incontrovertible principle of nature in the alimentary and organic world, that nature operates similarly under similar circumstances. Hence, the theory here offered loses none of its certainty because we are unable to recognize with the unaided eye, on account of their minuteness, the inimical atoms and the minute network around them, and to exhibit them by section.*—Water Cure Manual, p. 92, 1845.

The encapsulation of exudates, excretions, extravasions, disintegrating tissues, germs, parasites, bullets and other foreign bodies renders them harmless. The process and structure it evolves are plainly defensive measures. They once more remind us of the many and varied emergency measures the body has at its command.

The formation of gallstones and other stones is in itself an engineering feat that serves a useful purpose and even extends and saves life. In the lungs, for instance, in those who have tuberculosis, the affected spots are often the seat of the formation of stones. When this takes place, the disease in that part ends. Medical authorities consider that nature employs this means to wall up the tubercle bacilli.

The formation of stones in the gallbladder and kidneys, just as in the lungs, is the end result of

inflammation and undoubtedly serves a definite and useful purpose. Sometimes, it is true, they are made so large that they are the source of much trouble, but it is safe to assume that they are never made larger than the gravity of the situation demands. Most gallstones are small enough that they pass out without causing pain, and the individual is never aware that he or she has had them. A large number of people examined at autopsies are found to have gallstones in the gallbladder and were never aware that they had them. They never cause trouble until they go to pass out and only then if they are small enough to get into the gall duct but too large to make the entire passage. A stone that may easily travel through the common duct may be forced, with extreme difficulty, through the small opening of the duct into the intestine. This causes severe pain. As soon as the stone is forced through, the pain ceases. (The sufferer then thinks that it was the last treatment he employed that relieved the pain and "cured" his troubles.)

A *thrombus* is a small blood clot formed inside a blood vessel. The condition is called *thrombosis* and the vessel is said to be *thrombosed*. They are the result of injury and inflammation and may completely plug the vessel.

In the intestines are many small glands composed of lymphoid structure just as are the tonsils of the throat. They are known as Pyer's patches. In typhoid fever these patches are swollen or enlarged (hypertrophied), and frequently they suppurate. They may slough off. This peeling off may result in a hemorrhage or it may not, depending on whether or not all the vessels in that locality are tightly *thrombosed*. If they are all tightly *thrombosed*, no hemorrhage occurs. If the work of sealing the vessel is not complete or perfect, then a hemorrhage occurs with more or less loss of blood before it finally ceases. This is but another evidence of nature's engineering work. These *thrombi* may later be swept into the general circulation and carried to some vital spot where they are too large to pass through the artery and may there cut off the blood to parts of the organ, causing it to die of starvation. Starvation would only occur in cases of stopping of an "end artery."

"Anastamosing" arteries would soon establish sufficient collateral or compensatory circulation to supply the part with blood.

If heat or friction of sufficient intensity and duration is applied to the skin, a blister forms; that is, a watery exudate or serum is poured out of the surrounding tissues and circulation into the "space" between the dermis and epidermis and detaches the dermis from this, raising it up and thus protecting the tissues beneath. The accumulated fluid holds back the heat or, in the case of sunburn, the actinic rays, and protects from the friction. This little piece of engineering work is quite obviously a defensive work. In both burns and sunburn, inflammation and healing follow the blister, and in the case of sunburn pigmentation occurs to protect from future sunburn.

Of a similarly defensive nature are corns and callouses that form on the feet and hands or any other surface of the body that is subjected to constant friction. The clerk who deserts the store for manual labor finds his hands are tender and blister easily when he handles tools. However, before many days have passed, the skin on his hands has become thickened and hardened, ultimately becoming almost horn-like. When this occurs, he finds that no reasonable amount of hard work blisters his hands.

Tumors likely begin in this same manner. They probably begin as hardening and thickening of the tissues at a point of irritation as a means of defense.

Hardening and thickening of the tissues occurs in any and all parts of the body to resist constant irritation. This can be seen in the mouth, stomach and intestines of those who employ salt and condiments. It is seen in the constant use of drugs. Silver nitrate, for instance, if repeatedly employed, converts the mucous surface upon which it is used into a kind of half-living leather. Other organs harden and thicken as a result of toxic irritation. Toxemia, with or without the aid of external irritation, often necessitates, at certain points of the body, the erection of greater than ordinary barriers against it. When the normal cells of a local spot become so impaired that they no longer successfully resist the encroachment of toxins, not only are the usual defense processes brought into activity, but also, since a more than usual condition is to be met, nature calls into play her heavier battalions. She begins by erecting a barrier of connective tissue cells. Then, with a slowly-yielding fight against the toxins, she

continues to erect her barriers. This may continue until the tumor becomes so large as to constitute a source of danger itself. Were it not for the erection of this barrier, the causes against which it is erected would destroy life long before they ultimately do. The tumor actually prolongs life.

A process similar to this is seen in plants that have been invaded by parasites. The large, rough excrescences seen on oak trees form about the larva of a certain fly. This fly lays its eggs beneath the bark of the tree. The larva which develop from the eggs secrete a substance that results in the formation of the huge tumorous mass. Large tumor-like masses form on the roots and stalks of cabbages as a result of parasitic invasion. The olive tree also develops tumors from a similar cause, while cedar trees present peculiar growths called "witches' brooms" as a result of a fungus growing on them. There are many other examples, and they are all quite obviously protective measures. Tumor formation is undoubtedly due to a variation in the complex relations determining normal growth and is of a distinctively protective nature. A tumor is not a source of danger until it begins to break down.

In inflammation of the kidneys due to the impairment of kidney function, the normal constituents of the urine are decreased. They remain in the blood instead of being eliminated. Due to the necessity of removing from the circulation, the salts, etc., that are normally eliminated through the kidneys, and due also to the necessity of keeping these in dilute solution so long as they remain in the body, and to the equal necessity of removing them from the circulation, drospy develops in various portions of the body, particularly in the tissues immediately under the skin. It may also collect in the cavities of the body. When kidney function is restored, the dropsical fluid is gradually absorbed into circulation and eliminated.

An aneurism is an inflated portion of an artery. If the walls of an artery become weak at a given place, they either burst, some of its coats are strengthened or else it becomes bulged out due to the pressure of the blood from within. The body at once sets about to protect itself by forming a vail of new tissue around the aneurism. Should it rupture so that the blood finds its way along between other organs, a wall of scar tissue is thrown up around the aneurism to limit the escape of blood. This is called a dissecting aneurism.

Thus we might continue giving example after example of the wonderful engineering feats of the body and show with what marvelous powers and works it meets emergencies and protects its own vital interests. When we consider the wonderful mechanism of the human body, the certainty with which all organs perform their allotted work, the marvelous ingenuity with which the body meets emergencies, its almost limitless powers of repair and recuperation, we develop a large respect and admiration for the healing powers of the body and learn to view with contempt and disgust the means that people employ in unintelligent efforts to "cure."

Well did Jennings affirm:

But at every step of her (nature's) downward progress (in the face of pathoferic causes she cannot overcome), her tendency and effort have been to ascend and remount the pinnacle of her greatness; and even now, in the depth of her degradation, the tendency of all that remains of her, of principle or law, power and action, is still upwards.